Thermo Recorder

TR-71U*i*
TR-72U*i*

User's Manual

CE

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Important Notices and Disclaimers

In order to properly use this product, please carefully read this manual before using.

T&D Corporation accepts no responsibility for any malfunction of and/or trouble with this product or with your computer that is caused by the improper handling of this product and will deem such trouble or malfunction as falling outside the conditions for free repair outlined in the attached warranty.

- All rights of this manual belong to T&D Corporation. It is prohibited to use, duplicate and/or arrange a part or whole of this User's Manual without the permission of T&D Corporation.
- Microsoft® and Windows® are registered trademarks of Microsoft Corporation USA and are binding in the USA, Japan and all other countries.
- Windows Vista is either a registered trademark or trademark of Microsoft Corporation in the United States, Japan, and/or other countries.
- All registered trademarks, company names, product names and logos mentioned herein or for products being used are the property of T&D Corporation or of their respective owners.
- Specifications, design and other contents outlined in this manual are subject to change without notice.
- Please follow the safety precautions outlined in the Manual carefully. We cannot guarantee nor are we responsible for safety if this product is used in any manner other than was intended.
- On-screen messages in this document may vary slightly from the actual messages.
- Please notify the shop where you purchased this product or T&D Corporation of any mistakes, errors or unclear explanations in this manual.
  T&D Corporation accepts no responsibility for any damage or loss of income caused by the use of our product.
- This product has been designed for private and/or industrial use only. It is not for use in situations where strict safety precautions are necessary such as in connection with medical equipment, whether directly or indirectly.
- We are not responsible for any malfunction or trouble caused by the use of our product or by any problem caused by the use of measurement results of our product. Please be fully aware of this before using our product.
- This manual cannot be reissued, so please keep it in a safe place.
- Please read the warranty and provisions for free repair carefully.

Radio, EMC and Safety Regulations

This device complies with Part 15 of the Federal Communications Commission (FCC) rules. Operation is subject to the following two conditions: (1)This device may not cause harmful interference, and (2)this device must accept any interference received, including interference that may cause undesired operation.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

-

Caution

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Safety Precautions and Instructions

To ensure safety obey all of the following warnings.

The following items should be strictly obeyed for the safe usage of this Unit, and for protecting yourself and other people from bodily harm and/or damage to property.

Before using this Unit, please read the following carefully and fully understand the contents.

Explanation of Symbols

Explanation of Warning Symbols

⚠ **DANGER**	These entries are actions that absolutely under no circumstance should be taken. These entries are actions that absolutely under no circumstance should be taken. The taking of such an action may cause serious personal physical damage or death.
⚠ **CAUTION**	These entries are actions that if taken may lead to physical injury or damage to persons or things.

Explanation of Picture Symbols

△	Denotes an important warning or caution. Inside or near the symbol will appear another symbol giving details. EX: ⚠ CAUTION AGAINST ELECTRIC SHOCK
⊘	Denotes a forbidden action. Inside or near the symbol will appear another symbol giving details. EX: ⊘ DO NOT DISASSEMBLE
●	Denotes an action that must be taken. Inside or near the symbol will appear another symbol giving details. EX: ● UNPLUG POWER PLUG FROM OUTLET

⚠ DANGER	
 DO NOT DISASSEMBLE	Do not take apart, repair or modify the Unit. Doing so may cause fire or electrocution.
 FORBIDDEN	If water or a foreign object enters into the Unit, immediately turn OFF the power, remove batteries, and stop using. Continued use may cause fire or electrocution.
 DO NOT USE IN WET AREAS	Do not use this Unit in wet or humid places, such as a bathroom. Doing so may cause fire, electrocution, and/or malfunction.
 STRICTLY FOLLOW	Store the Unit, batteries and communication cables out of the reach of children. Touching them may cause injury and swallowing batteries is extremely dangerous.
 FORBIDDEN	If any smoke or strange smells are emitted from the Unit, immediately turn OFF the power, remove batteries, and stop using. Continued use may cause fire or electrocution.
 FORBIDDEN	Do not drop or expose the Unit to a strong impact. If that happens to the Unit, immediately turn OFF the power, remove batteries, and stop using. Continued use may cause fire or electrocution.
 FORBIDDEN	This device is designed exclusively to measure and record temperature and humidity. Do not use it for any other purpose than to measure and record temperature and humidity.

⚠ CAUTION	
 FORBIDDEN	This Unit is not waterproof. If the Unit gets dirty, wipe it with a clean cloth and a mild detergent.
 FORBIDDEN	Harmful gases or chemicals may cause corrosion and/or other danger to the Unit. Also, by coming in contact with hazardous substances, harm may occur to the people handling the Unit. Therefore, do not use or store it in any environment that is exposed to chemicals and harmful gases.
 CAUTION	Battery life varies depending upon the type of battery, the battery performance, and the ambient temperature in which it is used.
 CAUTION	Battery terminals may provide insufficient contact due to age or vibration.
 CAUTION	Condensation may occur when a Unit is moved from one environment to another where there is a great difference in temperature. Use the Unit in an environment where the ambient temperature is from -10 to 60°C and the humidity is 90%RH (no condensation) or less.
 CAUTION	To prevent damage to the Unit from static electricity, remove static electricity from your body by touching metal around you (door knob, window frame) before touching the Unit. Static electricity may cause not only damage to the Unit, but may cause breaks in or a loss of data.
 STRICTLY FOLLOW	If the Unit is not to be used for a long period of time, for safety reasons please remove the battery. If left in the Unit, the battery may leak and lead to malfunctioning.
 STRICTLY FOLLOW	If the Unit is not to be used for a long period of time, store it in a place where it is not exposed to high temperature and high humidity with other items included. Use the Unit in an environment where the ambient temperature is from 0 to 50°C and the humidity is 90%RH (no condensation) or less.



CAUTION

Please take extra caution when plugging in and pulling out the USB plug while another USB device such as CDD or HDD is in operation.
It may cause problems to your CD-RW or other device.



STRICTLY FOLLOW

We shall not guarantee the operation of the Unit if you have connected it to your computer using a USB hub or a USB extension cable.



FORBIDDEN

Please do not insert your fingers or any foreign objects into any of the Units' jacks.



FORBIDDEN

Do not use any other batteries than those that are specified in this Manual.
Doing so may cause fire or malfunction.



FORBIDDEN

Do not use or store the Unit in any of the following places. Doing so may cause electrocution, fire and/or other adverse effects to the device and/or your computer.

-Areas exposed to direct sunlight
  This will cause the inside of the Unit to become overheated and may cause fire, deformation, and/or other damage including malfunction.
- Areas exposed to strong magnetic fields
  This may cause damage including malfunction.
- Areas exposed to water leakage
  This may cause electrocution or other damage including malfunction.
- Areas exposed to excessive vibration
  This may cause injury, malfunction, damage or loss of proper electrical contact.
- Areas near fire or exposed to excessive heat
  This may cause damage including malfunction and deformation.
- Areas exposed to excessive dust, dirt and smoke
  This may cause damage including malfunction.

⚠ Notices about Wireless Communication Devices

This Unit is an infrared-equipped device. Do not place the Unit in areas exposed to direct sunlight or incandescent light, or near other infrared devices.
Infrared communication may not work properly when in direct incandescent light or when other infrared devices are nearby.

Proper communication may not be possible if the Infrared Port accumulates impurities (dirt).
If the Infrared Port gets dirty, wipe it with a soft cloth.

Don't touch the Infrared Port with your finger during infrared communication.

⚠ Cautions about using the Temperature Sensor

When using the Temperature Sensor TR-0106, please take note of the following:

Use the sensor in an environment where the ambient temperature is from -40 to 110°C.

It is possible to use just one extension cable per temperature sensor.

This sensor is not waterproof.
Only use in an environment where there is no condensation or possibility of becoming wet. Do not use in water or near areas where high-pressure water is flowing.

⚠ Cautions about using the Temperature / Humidity Sensor

When using the Temperature / Humidity Sensor TR-3100, please take note of the following:

Use the sensor in an environment where the ambient temperature is from 0 to 50°C and the humidity is 95%RH (no condensation) or less.

If extremely severe temperature changes occur, the humidity measurements may appear abnormal.
Once the sensor's temperature becomes stable, the measurements will return to normal.

This sensor is not waterproof.
Only use in an environment where there is no condensation or possibility of becoming wet. Do not use in water or near areas where high-pressure water is flowing.

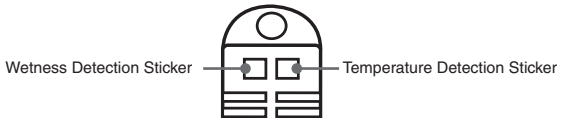
Do not use in any environment that is exposed to corrosive gas and organic solvents. Also, do not use in areas near fire or exposed to excessive heat.

When using the temperature / humidity sensor in environments where the temperature is 0 to 15°C and humidity under 30%RH, there may occur changes in measurement readings. This is not a malfunction.

During use, the surface of the temperature / humidity sensor will accumulate impurities (dirt) causing a decrease in the sensor's accuracy and sensitivity. The service life of humidity sensors can vary greatly depending on operating environment.Periodic calibration may be required.
Moreover, it may be necessary to replace the sensor if the sensor is being used in an environment where smoke and dust are in over-abundance or where the temperature and humidity exceed the operational range.

When the sensor is not being used, please place it in the attached vinyl bag with the drying agent included and store it in a cool dark place with a temperature of between 5 to 25°C and a humidity of below 30%RH.

Attached to the temperature / humidity sensor are two stickers: a wetness detection sticker and a temperature detection sticker. If either of the stickers shows abnormality, you should change the old sensor to a new one immediately.



Wetness Detection Sticker

Informs you that the sensor has been wet.

Normal : Under normal conditions, black dots will appear on a white background.

Abnormal : Under abnormal conditions, it will turn to red.

Temperature Detection Sticker

Informs you that the sensor measured a temperature measurement over 60°C.

Normal : Under normal conditions, the number [60] will lightly appear on a white (pink) background.

Abnormal : Under abnormal conditions, the number [60] will clearly appear on a red background.

Before Using this Product

Please be careful about the procedures for Installation. (For USB communication between your computer and a TR-71Ui / 72Ui)

In order to use a USB connection to communicate between this product and a PC, it is necessary to install the application and the USB driver.

Before connecting this product to a computer with a USB communication cable, it is necessary to first install the software and the USB device driver. If you connect a TR-71Ui / 72Ui to the computer before installing, the USB device driver may not be installed properly.

If you have connected a TR-71Ui / 72Ui to your computer before installing the USB device driver, make sure to click the [Cancel] button in the Wizard window when it pops up on the computer display. Then disconnect the USB communication cable from the TR-71Ui / 72Ui .

For more details about the proper installation procedure, see the User's Manual for the provided software "T&D Recorder for Windows".

For Windows 7 / Windows Vista



For Windows XP



Basic Procedures

The following outline shows the basic procedures for getting ready, making settings and using the product.

1. Getting Ready

1. Install the software "T&D Recorder for Windows" (See the User's Manual that accompanies the software.)
2. Get Ready the TR-71Ui / 72Ui Data Logger (See this Manual)
3. Install the USB Device Drivers (See the User's Manual that accompanies the software.)

2. Making the TR-71Ui / 72Ui Unit Settings (using supplied software) and Starting Recording

1. Make Settings for Device Names, Recording Intervals and Recording Modes
2. Start Recording

3. Downloading Data and Displaying Graphs*

Via Computer

1. Connect the TR-71Ui / 72Ui with a USB communication cable to a computer
2. Download data via Software
3. Display graphs via Software

Via Data Collector TR-57DCi (sold separately)

1. Download data via Infrared Communication
2. Display graphs via Data Collector

* For details about making TR-71Ui /72Ui Unit Settings or about Downloading Data, see the explanation in the Software User's Manual and/or the Software "Help".

About Thermo Recorder TR-71Ui / 72Ui

Outline

TR-71Ui / TR-72Ui Thermo Recorders are data loggers capable of measuring, displaying and recording temperature and humidity data. TR-71Ui has two temperature channels and TR-72Ui has one temperature and one humidity channel.

Temperature Measurement Range: -60 to 155°C (TR-71Ui)

The TR-71Ui with the sensor included in this package can measure and record in a range of -40 to 110°C, but by purchasing one of our optional sensors it is possible to measure and record in the wider range of -60 to 155°C.

Please take a look at our full range of optional sensors to find one to match your application.

Humidity Measurement Range: 10 to 95%RH (TR-72Ui)

The TR-72Ui with the sensor included in this package can simultaneously measure and record temperature in a range of 0 to 50°C and humidity in a range of 10 to 95%RH.

Storage Capacity: 8,000 Readings (One reading is a set of data which includes measurements for that unit type's number of channels.)

At the longest recording interval of 60 minutes, recording can continue consecutively for one year.

One Year of Operation with just One AA Alkaline Battery

Our low energy consumption design gives you one year of continuous operation with only one AA alkaline battery. This enables measuring and recording over long periods of time.

IMPORTANT:

Battery life varies depending upon the type of battery, the battery performance, the measuring environment, and the frequency of communication. Specifications and explanations used in this manual are based on operations carried out with a new battery and are in no way a guarantee of your actual battery life.

When infrared communication function is enabled, the estimated battery life will be about 7 months.

Battery Life Warning Display

When the battery power becomes low, a battery life warning mark will appear in the Unit's LCD display.

Data Protection Function

If the battery power becomes even lower after a battery life warning mark appears in the Unit's LCD display, the Unit will automatically go into sleep mode in order to protect the data. In sleep mode all normal operations will stop and it will become impossible to switch on the power of the Unit.

IMPORTANT:

If the Unit remains in sleep mode for about 2 months without a change of battery, or if the battery is left out of the Unit for more than 2 minutes, all recorded data will be lost.

Infrared Communication Function

By placing the infrared port of the TR-57DCi and the TR-71Ui / 72Ui Unit face-to-face, it is possible to download the recorded data from the TR-71Ui / 72Ui and store the downloaded data.

Current Readings Monitoring Display

With our exclusive software, you cannot only monitor the current measurements at a set interval, but can view those measurements in a continually changing graph. You can simultaneously display the current measurements and corresponding graphs for the number of Units you have connected.

15 Recording Intervals

Select from 15 recording intervals (from 1 second to 1 hour) to meet your needs.

Also, there are two types of recording modes to choose from.

One-Time: Upon reaching the storage capacity of 8,000 readings, "FULL" will appear on the LCD display and recording will automatically stop.

Endless: Upon reaching the storage capacity of 8,000 readings, the oldest data will be overwritten and recording will continue.

Adjustment Function

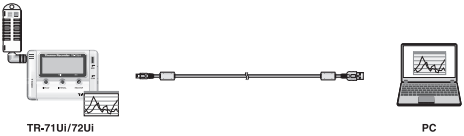
By entering the adjustment values beforehand, it is possible to view and record the adjusted measurement values. There are two methods of adjustment: adjusting by one point or adjusting by two points. Adjustment for differences will be based upon the following simple equation Y=aX+b. (X equals the measured value and Y equals the value after adjustment.)

* If you remove a sensor that was connected when adjustment was carried out and then connect a different sensor, make sure to make new adjustment settings to reflect the actual situation.

Selecting a Method for Downloading Data

Via USB Cable

Connect a TR-71Ui / 72Ui Unit directly to your computer with a USB cable to download recorded data.



Via Data Collector TR-57DCi (sold separately)

Use the infrared communication function in the TR-57DCi to collect recorded data from a TR-71Ui / 72Ui Unit. The collected data can then be downloaded to your computer by connecting the TR-57DCi to a PC with a USB cable.

Getting Ready and Downloading Data

1. Using the software "T&D Recorder for Windows" which comes with the Data Collector TR-57DCi, make necessary settings for infrared communication function in the TR-71Ui / 72Ui and set to "Permit". For more details, see the User's Manual that comes with the software.
2. With the Unit and the TR-57DCi face-to-face and with about 10 to 20 cm of space between them, download the recorded data from the TR-71Ui / 72Ui to the TR-57DCi. (within 15 degrees from side to side and top to bottom) For detailed information about the operation and functions of the Data Collector TR-57DCi, see the TR-57DCi User's Manual.



IMPORTANT:

Infrared communication is a function limited to the downloading of recorded data. Other functions such as making Unit settings cannot be carried out.

For downloading one TR-71Ui / 72Ui Unit at full storage capacity, it takes about 60 seconds.

Package Contents

The following items are included in the package:

TR-71Ui



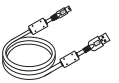
TR-71Ui Unit × 1



Temperature Sensor TR-0106 × 2



Software CD-ROM × 1



USB Communication Cable US-15C × 1



AA Alkaline battery × 1



User's Manual (Warranty) × 1



Software User's Manual × 1

TR-72Ui



TR-72Ui Unit × 1



Temperature / Humidity Sensor TR-3100 × 1



Software CD-ROM × 1



USB Communication Cable US-15C × 1



AA Alkaline battery × 1



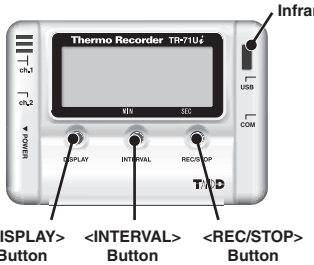
User's Manual (Warranty) × 1



Software User's Manual × 1

Appearance Diagram and Part Names

[FRONT]

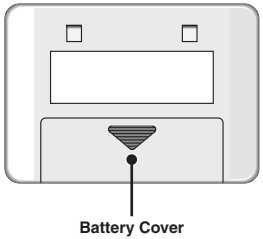


DISPLAY: Pressing this button will change the LCD display mode. (See p.27)

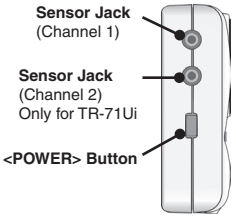
INTERVAL: Pressing this button enables you to make or change recording interval settings or view the currently set recording interval. (See p.26)

REC/STOP: Pressing this button will start or stop recording. (See p.25)

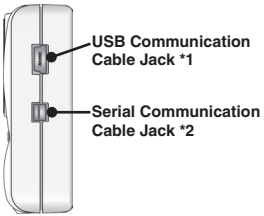
[BACK]



[LEFT SIDE]



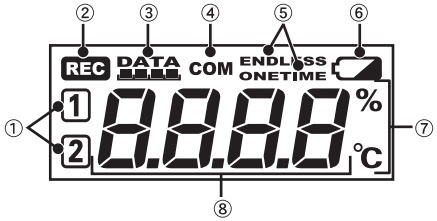
[RIGHT SIDE]



*1: Enable communication by connecting the data logger to the computer with a USB cable. Before communicating via USB it is necessary to install the USB device driver. After installing, your computer will be able to detect and recognize any TR-71Ui / 72Ui that has been connected with a USB cable. For details about how to install the USB device driver, see "Installing the USB Driver" in the Software "T&D Recorder for Windows (TR-5,7xU)" User's Manual.

*2: The serial communication cable is optional.

LCD Display



① Channel Mark	The channel number of the measurement being displayed will appear.
② REC Mark	The recording status will appear. ON: Recording in progress. BLINKING: Waiting for programmed start. OFF: Recording has been stopped.
③ Data Capacity Scale	After every 2,000 readings the scale will be marked from left to right. Storage capacity is 8,000 readings.
④ COM Mark	Normally, this mark will not be displayed. When a Unit is connected to the computer with a USB cable, this will appear. Also, this mark will blink rapidly when a Unit is in communication with the computer via USB or Infrared communication.
⑤ Recording Mode	ENDLESS: Upon reaching the storage capacity of 8,000 readings, the oldest data will be overwritten and recording will continue. ONETIME: Upon reaching capacity of 8,000 readings, recording will automatically stop.
⑥ Battery Life Warning Mark	If there is ample battery power, this will not appear. When it is time for the battery to be replaced, this mark will appear. (See p.22)
⑦ Unit of Measurement	%: Humidity °C / °F: Temperature
⑧ Current Readings and Messages Area	Normally, the current readings will appear. Depending on the Unit's status, operational messages will be displayed. (See the next page.)

Main Display Messages

The following are the main display messages that appear on the LCD display.

FULL (Storage Capacity FULL)

Upon reaching storage capacity of 8,000 readings, "FULL" will appear on the LCD display. When this message appears, recording has been stopped. (Only when recording in ONETIME mode will this be displayed.)



Sensor Error

This will be displayed when a sensor has not been connected, has not been completely inserted or the wire has been broken. Measurement and recording will continue so battery power will be consumed.



SLP (Sleep Mode)

If the battery power becomes extremely low, this message will appear on the LCD display. When this appears, recording has been stopped in order to save the already recorded data. See "Changing the Battery" on page 22 and change the battery.

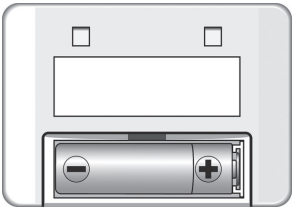


Nothing Appears

If after going into sleep mode above, the battery is further left unchanged the display will automatically shut off. If that occurs, all recorded data will be lost. See "Changing the Battery" on page 22 and change the battery.

Installing the Battery

1. Remove the battery cover form the back of the Unit.
2. Insert one AA alkaline battery, making sure that the + and – are in the correct direction.
   Always use a new battery.



3. Replace and close the battery cover.

Changing a Battery

IMPORTANT:

- *When using the TR-57DCi (Data Collector) to download recorded data via infrared communication, while a battery life warning mark is on display, infrared communication may be broken or may be impossible.*
- *Besides the Unit's LCD display, the battery level can be displayed on the computer screen via the software if a Unit is connected to the computer with a USB communication cable.*
- *If a Unit is left without a battery for some time, all data may be lost, so please work quickly when changing the battery.*

When a battery life warning mark appears, try to replace the battery with a new one as soon as possible.

1. When it is time for the battery to be replaced, a battery life warning signal will appear.



* If, at this time you change the battery, recording will continue uninterrupted and all data will be saved for downloading.

2. If the battery is not changed but it remains in use, [SLP] will appear in the LCD display. Recording will stop in order to protect already recorded data.



* If you change the battery at this point, it is still possible to download all saved recorded data.

3. If the battery is further left unchanged, the display will automatically shut off and all previously recorded data will be lost.

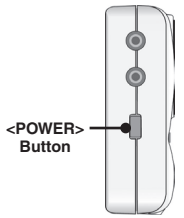
About Battery Life

A TR-71Ui / 72Ui Unit can be used continuously for about one year with one AA Alkaline Battery.

Battery life varies depending upon the type of battery, the measuring environment, and the frequency of infrared communication.

Turning ON the Power

By holding in the <POWER> button at the left side, the Unit will turn on.



Turning OFF the Power

By holding in the <POWER> button, "OFF" will appear in the LCD display and the Unit will turn off.

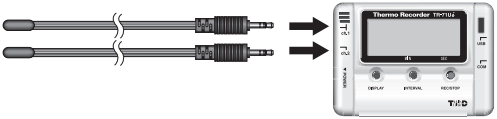
IMPORTANT:

- *During recording, the power cannot be turned off. Please stop recording first and then press the <POWER> button to turn off the power.*
- *Even if the power has been turned off, the recorded data will be saved. However, if the battery power is totally lost, all data will be lost, so please download data as soon as possible to avoid losing any necessary data.*

Connecting the Sensors

Connect the sensors to the sensor jacks on the TR-71Ui / 72Ui Unit.

TR-71Ui

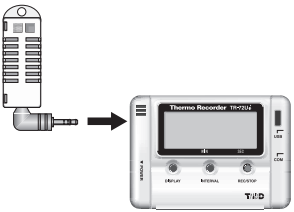


- If a temperature sensor is connected to only the Ch 2 jack, the internal sensor will be used to measure for Ch 1.
- To ensure a proper connection make sure that the sensor connector is completely inserted.

IMPORTANT:

If a sensor extension cable is being used with the data logger connected by USB to your computer, electromagnetic waves may cause large errors in measurements.

TR-72Ui



- To ensure a proper connection make sure that the sensor connector is completely inserted.

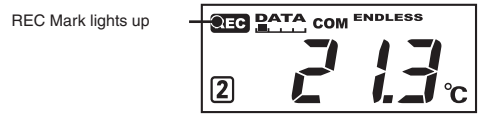
Starting Recording: <REC/STOP> Button

By pressing the <REC/STOP> button on the TR-71Ui / 72Ui Unit you can start a recording session immediately.

* The Device Name, Channel Name, Recording Mode and all other recording condition settings must be made first via the computer using the software.

Starting Recording

Pressing the <REC/STOP> button on the TR-71Ui / 72Ui Unit until the REC mark appears will start a new recording session.

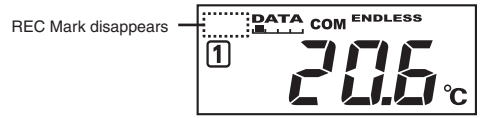


IMPORTANT:

- *By starting a new recording session, all data currently saved in the Unit will be erased.*
- *Even if the Unit is waiting for a programmed start, by pressing the <REC/STOP> button until the REC mark appears, you can start a new recording session immediately.*

Stopping Recording

You can stop a recording session by pressing the <REC/STOP> button until the [REC] mark disappears from the LCD display. When it has disappeared, recording has stopped.



Setting Recording Interval: <INTERVAL> Button

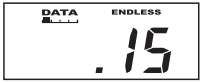
You can make or change recording interval settings from the <INTERVAL> button on the front of the TR-71Ui / 72Ui Unit.

IMPORTANT:

During recording or while waiting for a programmed recording to start, you cannot make recording interval settings.

1. Press in the <INTERVAL> button on the front of the Unit until the recording interval appears in the display.

2. With each pressing of the <INTERVAL> button the recording interval time will change. Press until the desired setting appears.



15 seconds



15 minutes

3. When the desired recording interval appears, stop pressing the <INTERVAL> button. Within a few seconds, the current measurement readings will return to the display and the setting will be finished.

* By pressing the <INTERVAL> button during recording or while waiting for a programmed recording to start, the currently set recording interval will be displayed.
* During recording or while waiting for a programmed recording to start, you cannot make recording interval settings.

Changing the LCD Display Mode: <DISPLAY> Button

The factory default setting is an Alternating Display.

There are two LCD display modes for current readings: Alternating Display and Fixed Display.

Alternating Display:

The LCD display shows Ch 1 and Ch 2 alternately in the following order:

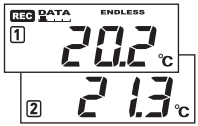
Ch 1 >> Ch 2 >>Ch 1 >> · · · · · · ·

Fixed Display:

The LCD display shows one channel specified by pressing the <DISPLAY> button.

EX: For TR-71Ui

1. During an Alternating Display: Both Ch 1 and Ch 2 will be alternately displayed



Press the button

By pressing the button when the Unit has been set to an Alternating Display, the LCD display mode will change to a Fixed Display.

2. Fixed Display: Only Ch 1 will be displayed



Press the button

With each pressing of the button the item for the Fixed Display will change.

Fixed Display: Only Ch 2 will be displayed



Press the button

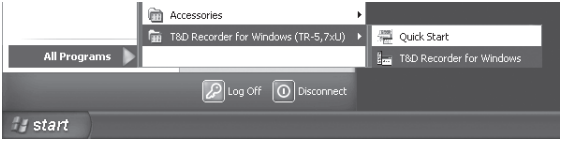
3. Alternating Display

The LCD display mode will return to an Alternating Display.

Opening the Application and Help

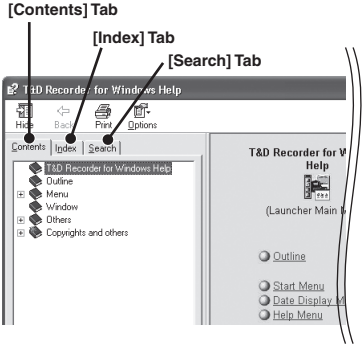
After software installation has been completed, "T&D Recorder for Windows" will be registered in the Windows Start Menu.

Click as follows to open: Windows Start >> All Programs >> T&D Recorder for Windows (TR-5,7xU) >> T&D Recorder for Windows (application)



"T&D Recorder for Windows" is made up of two applications. ("T&D Recorder for Windows" and "Quick Start")

To get any necessary help, go to the "Help menu in "T&D Recorder for Windows" as opened above, click on "Search by Topic" to show the top window in which all of related topics are listed.



[Contents] Tab

By clicking on one of the topics listed, you can find detailed information for that subject.

[Index] Tab

By selecting a keyword in the keyword list and clicking the [Display] button at the bottom, a detailed explanation will appear.

[Search] Tab

Enter the keyword you wish to search for and click the [List Topics] button. All topics that contain the keyword will be displayed. By selecting a topic from the list and clicking the [Display] button at the bottom, a detailed explanation window will appear.

Specifications

Device Type	**TR-71Ui**	**TR-72Ui**	
Number of Channels	2 Ch (Select from Ch 1 internal / Ch 2 external)	2 Ch (1ch for Temperature / 1ch for Humidity)	
Measurement Items	Temperature	Temperature	Humidity
Internal Temperature Sensor	-10 to 60°C	-10 to 60°C	-
Attached Sensor	-40 to 110°C	0 to 50°C	10 to 95%RH
Optional Temperature Sensor	-60 to 155°C *1	-40 to 110°C	-
Measuring Accuracy (with Attached Sensor)	Avg. ± 0.3°C (-20 to 80°C) Avg. ± 0.5°C (-40 to -20 / 80 to 110°C)		±5%RH (at 25°C / 50%RH)
Measurement / Display Resolution	0.1°C		1%RH
Sensor	Thermistor		Macromolecular Humidity Sensor
Recording Intervals	Select from 15 choices: 1, 2, 5, 10, 15, 20 and 30 sec. / 1, 2, 5, 10, 15, 20, 30 and 60 min.		
Storage Capacity	8,000 readings (One reading is a set of data which includes measurements for that unit type's number of channels.)		
Recording Modes	ENDLESS / ONETIME		
LCD Displayed Items	Measurements (Ch1 only, Ch2 only, alternating display), Measurement and Recording Status, Battery Life Warning, Amount of Recorded Data, Unit of Measurement		
Power	AA Alkaline Battery LR6 × 1		
Battery Life *2	About 1 year (About 7 months if recorded data is downloaded via infrared communication once a day)		
Communication Interfaces	USB / Serial (RS-232C) / Infrared Communication		
USB Communication Time	About 8 sec. (when downloading a Unit at full storage capacity)		
Infrared Communication	IrPHY 1.2 low power		
Dimensions / Weight	H55 × W78 × D18mm / About 62g (Including one AA battery)		
Operating Environment	Temperature: -10 to 60°C / Humidity: 90%RH or less (no condensation)		
Attached Sensor	TR-0106 × 2	TR-3100 × 1	
Accessories	AA Alkaline Battery LR6 × 1 USB Communication Cable × 1 (US-15C ; length 1.5m) Software (CD-ROM) / Users Manual (Warranty) × 1		

*1: Measurement range varies depending upon the type of temperature sensor. For details see "Options" on the next page.

*2: Battery life varies depending upon the measuring environment, frequency of communication, recording interval, and quality of the battery being used.

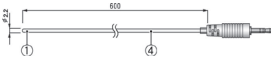
Options

Temperature Sensor (for TR-71Ui)

Unit: mm

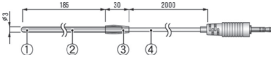
Fluoropolymer Coated Sensor TR-1106

Cable Length: 0.6m
Time to Thermal Constant:
In air: about 30 sec.
In water: about 4 sec.



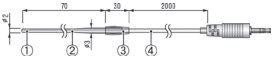
Stainless Protection Sensor TR-1220

Cable Length: 2m
Time to Thermal Constant:
In air: about 36 sec.
In water: about 7 sec.



Stainless Protection Sensor TR-1320

Cable Length: 2m
Time to Thermal Constant:
In air: about 12 sec.
In water: about 2 sec.



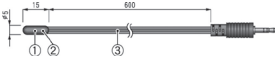
Materials: ① Thermistor ② Stainless pipe (SUS316) ③ Fluoropolymer Compaction Tube ④ Fluoropolymer-Coated Electrical Wire
Temperature Measurement Range: -60 to 155°C
Sensor Temperature Durability: -70 to 180°C
Water Resistance: IP67 (TR-1106 meets IP68)
Temperature Measuring Accuracy: Avg. ± 0.5°C (-40 to 80°C), Avg. ± 1.0°C (-60 to -40°C / 80 to 100°C), Avg. ± 2.0°C (100 to 155°C)

Temperature Sensor (for TR-71Ui / 72Ui)

Unit: mm

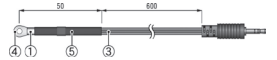
TR-0106 TPE Resin-Shielded Sensor

Cable Length : 0.6m
Time to Thermal Constant: In air: about 75 sec.



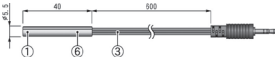
TR-0206 Screw-down Sensor

Cable Length : 0.6m
Time to Thermal Constant: In air: about 75 sec.



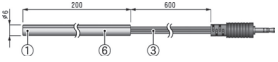
TR-0306 Stainless Protection Sensor

Cable Length : 0.6m
Time to Thermal Constant: In water: about 18 sec.



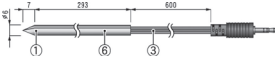
TR-0406 Stainless Protection Sensor

Cable Length : 0.6m
Time to Thermal Constant: In water: about 20 sec.



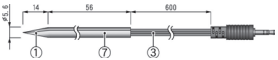
TR-0506 Stainless Protection Sensor

Cable Length : 0.6m
Time to Thermal Constant: In water: about 20 sec.



TR-0706 Stainless Protection Sensor

Cable Length : 0.6m
Time to Thermal Constant: In water: about 18 sec.

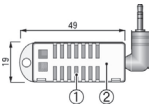


Materials: ① Thermistor ② TPE resin ③ TPE resin-shielded wire ④ M3 Crimp Terminal ⑤ Compaction tube ⑥ Stainless pipe (SUS304) ⑦ Stainless pipe (SUS316)
Temperature Measurement Range: -40 to 110°C
Sensor Temperature Durability: -50 to 115°C
Water Resistance: Only the Stainless Pipe is Waterproof
Temperature Measuring Accuracy: Avg. ± 0.3°C (-20 to 80°C), Avg. ± 0.5°C (-40 to 20°C / 80 to 100°C)

Temperature / Humidity Sensor (for TR-72Ui)

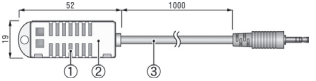
Unit: mm

TR-3100 Temperature / Humidity Sensor



TR-3110 Temperature / Humidity Sensor

Cable Length: 1m



Materials: ① Temperature / Humidity Sensor ② Polypropylene Resin ③ Vinyl Chloride Coated Electrical Wire
Humidity Measurement Range: 10 to 95%RH
Temperature Measurement Range: 0 to 50°C
Humidity Measuring Accuracy: ±5%RH (at 25 °C /10 to 50%RH)
Sensor Temperature Durability: -10 to 55°C
Conditions for Use: Without dew condensation, water leakage or effect from corrosive gas or organic solvents.

The service life of humidity sensors can vary greatly depending on operating environment. Periodic calibration may be required.

IMPORTANT:

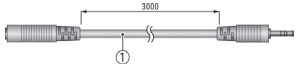
The extension cable cannot be used with the TR-3110.

Sensor Extension Cable

Unit: mm

TR-1C30 Sensor Extension Cable (Temperature Sensor Only)

Cable Length: 3m



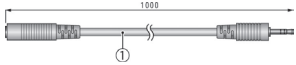
Materials: ① Vinyl Coated Electrical Wire

IMPORTANT:

- *Only one extension cable per sensor. When using the extension cable there will be a +0.3°C at normal temperature and at -50°C a gap of +0.5°C may occur.*
- *If a sensor extension cable TR-1C30 is being used with the data logger connected by USB to your computer, electromagnetic waves may cause large errors in measurements.*
- *Do not use this extension cable with the temperature / humidity sensor.*

TR-5C10 Sensor Extension Cable (Temperature / Humidity Sensor TR-3100 Only)

Cable Length: 1m



Materials: ① Vinyl Coated Electrical Wire

IMPORTANT:

- *The extension cable cannot be used with the temperature / humidity sensor TR-3110.*
- *Only one cable per sensor.*

Serial Communication Cable (for TR-71Ui / 72Ui)

TR-07C Serial Communication Cable

Specialized Connector D-sub9pin for communication with PC

Cable Length: 1.5m



TR-4C10 Serial Communication Cable

For communication with TR-57C/RTR-57C

Cable Length: 1.0m



TR-6C10 Serial Communication Cable

For communication with TR-57DCi/57U and RTR-57U

Cable Length: 1.0m

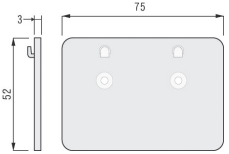


Wall Attachment (for TR-71Ui / 72Ui)

Unit: mm

TR-07K2 Wall Attachment

Included: Screw × 2 and Double-sided Tape × 1
Compatible Devices: TR-71Ui / 72Ui
Materials: Polycarbonate



For product information or questions contact us at:

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http://www.tandd.com/

We have opened an English Website for your convenience. Here you can find information about our company, news, products, upcoming events, software and user's manual downloads, as well as, other support. Please stop by and see what we have to offer.

Thermo Recorder TR-71Ui / 72Ui User's Manual

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